

# E- HEALTH CARE AND DIET RECOMMENDER SYSTEM USING ARTIFICIAL INTELLIGENT

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**ABSTRACT**—Nowadays, more individuals are being diagnosed with diseases that are becoming chronic due to not following the proper diet, not doing proper exercise regularly, or not giving proper attention to the diseases because of busy schedules. Hence, we propose a system that aims at improving the health of the patients suffering from various diseases by recommending them healthier diet and exercise plans by analyzing and monitoring health parameters and the values from their latest reports related to the disease. We considered patients suffering from either Diabetes or Blood pressure or Thyroid. Our System can be essentially useful for the doctors to recommend diet and exercise based on their latest reports and personal health details. For this, we have broadly classified our system into 2 modules: 1. Health Monitoring, 2. Diet & Exercise recommendation. In the Health Monitoring module, the system would suggest follow-up sessions until the reports come normal. For the Diet and Exercise

Recommendation module, the algorithm that is used is a Decision tree for classification. To be precise, C4.5 is used to give recommendations of diet and exercise. A C4.5 Decision tree will help recommend and determine if a particular food item and exercise should be given to a particular individual or not with respect to our customized datasets.

*Index terms*— DJANGO, Python, kmeans clustering algorithms

## I. INTRODUCTION

The health is also an important factor in human life. Due to busy schedules, workload, people are not paying attention to their health and fitness. Physical inactivity is the most important problem in today's generation. Maintaining their daily routine of diet and exercise is what people need to be fit. So people need some amount of nutrition to be healthy and maintain their health. Diet and exercise, if considered in general, varies from

users having different lifestyles, height, weight, sex, age, and activity level. Diet and exercise are both correlated. To maintain sugar level, it is required to balance the intake of calories. So, the proposed system would help doctors to recommend diet and exercise to their patients suffering from Diabetes, Blood pressure, or Thyroid along with the medication they provide on every follow-up on the click of their mouse.

In this project, we have modeled a Health Monitoring system with Diet and Fitness recommendation. We are specific to 3 diseases in this model i.e. Diabetes, Blood pressure, and Thyroid. These diseases are most widely spread across the people which require proper health monitoring and treatment.

The recommendation system will provide information based on user requirements and constraints. We divided our system into 2 modules 1. Health Monitoring System 2. Diet & Exercise Recommendation. For Diet and Exercise Recommendation module, the C4.5 classifier is used.

It has additional features like pre pruning, handling continuous attributes and missing values, and rule induction which helps in the accuracy of the model than a normal decision tree classifier. Multiple comparisons are done for finding ideal algorithm for the

recommendation system. ID3 and C4.5 is perform and with respect to the properties of the algorithms and C4.5 fulfills ideal conditions with the following properties.

## II. LITERATURE SURVEY

### With respect to Health Monitoring System

In Health care recommendation system was built using ontology framework for food and exercise recommendation. Decision tree algorithm was used for getting user's information from the data-set. In Four different algorithms (k-nearest neighbors, Support vector machine, Random forest, AdaBoost) were used and among this Random forest gave more accuracy and score than other three, i.e. 60 to 70 % for health monitoring that checked the patient's ECGs suffering from LQTS genetic disorder and identified patients with a high risk of cardiac events. In Three different algorithms (random forest, gradient boosting, logistic regression) were used, and among this logistic algorithm gave more accuracy and score than others, i.e 87%. which monitored and authenticated the Fitbit credential of a user. In Data analysis was done using different machine learning models like Random Forest, Support Vector Machine, and Deep Learning for remote health monitoring for Elderly People. In The system extracts the features from UCI Chronic

kidney data set which was responsible for Chronic kidney Disease, After that, ML automated the classification of different stages in the CKD with respect to its severity.

### With respect to Diet and Exercise Recommendation System

In Using USDA Food Composition Database they propose a diet recommendation that recommends Mauritian diet to patients that are hypertensive, with WEKA as a classification model. In A web-based diet recommendation system using Health Calabria Food Database claims to improve the health of people affected due to chronic disease. In Recommendation system was built for amateur as well as professional runner, which gives recommendations to the users by suggesting their diet and workout that will suit them, based on the inputs they provide on the system using Social Semantic Web.

### With respect to Algorithms

In [4] They introduced a simplified and improved version of the ID3 algorithm. They observe as the number of data records increases accuracy also increases.

With 1232 number of records, the accuracy of their improved ID3 Algorithm came out to be 92.6% which was more than the normal ID3 Algorithm which is 88.9%. In Three different

algorithms (ID3 decision tree algorithm, k-means, and naive Bayes algorithm) were used. It was observed that the ID3 algorithm was 6 to 7 % more accurate than the other two for the classification of data. In The J48 Decision Tree Algorithm was applied on ARFF Dataset to build a classifier model for Test data prediction of groupings of learner after using the Kmeans clustering algorithm to achieve class labels. In They created a dataset based on the deaths of the celebrity using the public and open access databases from the year 2006 to 2016 which consists of 11,200 reported deaths over the globe reported over the decade

## III. PROPOSED SYSTEM

The overview of our proposed system is shown in the below figure.

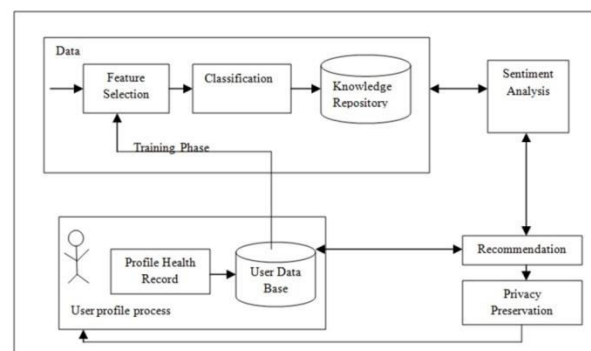


Fig. 1: System Overview

### Implementation Modules

#### Admin

- In this module, admin is responsible to authorize users. First admin login to system

and check the registered user’s details and activate them.

*Users*

- In this module, they are n number of users. The users should register first. After registration successfully, he can wait for the activation. After activation, he login to the system. After login successfully, the user fill weight loss form and check the recommendations, fill weight gain form and check the recommendations and check healthy recommendations.

**Implementation Algorithms**

*Decision tree*

- Trees are constructed through an algorithmic approach that identifies ways to split the data set based on different conditions.
- It is one of the most widely used practical methods for supervised learning.
- These are non-parametric method used for both classification and regression

**IV. RESULTS**

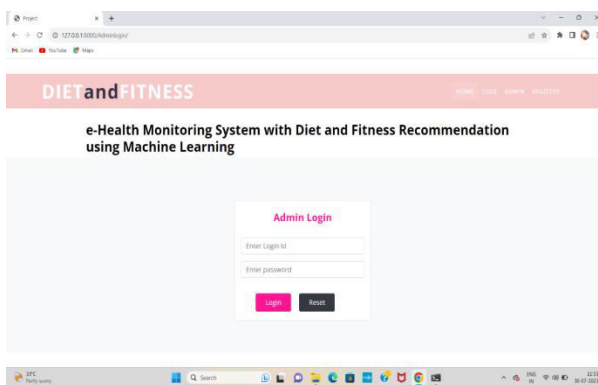


Fig. 2: Admin Login Page

ID	Username	Email	Password	Location	Status		
5	mona	mona	6354805864	mona@gmail.com	hyderabad	activated	Activated
6	manoj	manoj	6359962346	manoj2@gmail.com	bangalore	activated	Activated
7	kohli	kohli	6235499575	kohli@gmail.com	bangalore	activated	Activated
8	mahamad	mahamad	8501821793	mat7552@gmail.com	hyderabad	activated	Activated
9	sam	sam	6325498785	sam@gmail.com	Hyderabad	activated	Activated
10	maxwell	maxwell	4598425685	max@gmail.com	australia	activated	Activated
11	bugi	bugi	9003643945	bugi@gmail.com	Nellore	activated	Activated
12	manu	manu	9160643865	manu@gmail.com	Nellore	activated	Activated
13	manvitha	manvitha	8897909120	manvitha@gmail.com	Nellore	activated	Activated
14	Vyithu	Vyithu	8522938459	vyithu72@gmail.com	Nellore	activated	Activated
15	keerthi	keerthi	8688527911	keerthi@gmail.com	Nellore	activated	Activated

Fig. 3: Diet and Fitness Users

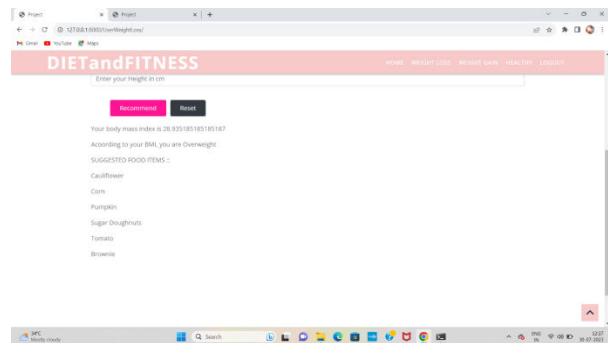


Fig. 4: Diet Recommendation

**V. CONCLUSION**

We have shown several semi-supervised and supervised textmining techniques for detecting fake online reviews in this research. We have combined features from several researchworks to create a better feature set. Also we have tried someother classifier that were not used on the previous work. Thus,we have been able to increase the accuracy of previous semisupervisedtechniques done by Jiten et al. [8]. We have alsofound out that supervised Naive Bayes classifier gives thehighest accuracy. This ensures that our dataset is labeled wellas we know semi-supervised model works well when reliablelabeling is not available.In our research work we have

worked on just user reviews. In future, user behaviors can be combined with texts to construct a better model for classification. Advanced preprocessing tools for tokenization can be used to make the dataset more precise. Evaluation of the effectiveness of the proposed methodology can be done for a larger data set. This research work is being done only for English reviews. It can be done for Bangla and several other languages.

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